Project Name: **BAGO-MARAGLE ESM**
Project Code: **BGM_ESM** **Site ID:** **1022** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	P. Ryan	**Locality:**	
Date Desc.:	04/04/95	**Elevation:**	1303 metres
Map Ref.:	Sheet No. : 8526 DGPS	**Rainfall:**	No Data
Northing/Long.:	6048604 AMG zone: 55	**Runoff:**	Slow
Easting/Lat.:	609183 Datum: AGD66	**Drainage:**	Well drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	Probable
Geol. Ref.:	No Data	**Substrate Material:**	Granodiorite

Land Form

Rel/Slope Class:	No Data	**Pattern Type:**	No Data
Morph. Type:	Upper-slope	**Relief:**	No Data
Elem. Type:	Hillslope	**Slope Category:**	No Data
Slope:	8 %	**Aspect:**	90 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Melacic Dystrophic Red Kandosol Medium Non-gravelly Clay-loamy Clay-loamy Very deep

Mapping Unit: N/A
Principal Profile Form: Um6.13

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: No suitable group

Site Disturbance: No effective disturbance. Natural

Vegetation:

Surface Coarse Fragments: 2-10%, coarse gravelly, 20-60mm, subrounded platy, Granodiorite

Profile Morphology

O1	0 - 0.02 m	Organic Layer; ;
A1	0.02 - 0.13 m	Dark reddish brown (5YR2.5/2-Moist); ; Clay loam; Strong grade of structure, 2-5 mm, Polyhedral; 100-200 mm, Prismatic; Rough-ped fabric; Dry; Firm consistence; Field pH 6 (pH meter); Many, very fine (0-1mm) roots; Common, fine (1-2mm) roots; Abrupt, Wavy change to -
A3	0.13 - 0.23 m	Dark reddish brown (5YR3/2-Moist); Biological mixing, 2-10% , Distinct; Clay loam; Strong grade of structure, 5-10 mm, Polyhedral; 100-200 mm, Lenticular; Rough-ped fabric; Dry; Firm consistence; Field pH 6 (pH meter); Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Clear, Irregular change to -
B21	0.23 - 0.37 m	Dark reddish brown (5YR3/4-Moist); Biological mixing, 2-10% , Distinct; Clay loam; Moderate grade of structure, 5-10 mm, Subangular blocky; 50-100 mm, Columnar; Rough-ped fabric; Dry; Firm consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots; Gradual, Smooth change to -
B22	0.37 - 0.74 m	Yellowish red (5YR4/6-Moist); Biological mixing, 0-2% , Distinct; Clay loam; Weak grade of structure, 5-10 mm, Subangular blocky; Smooth-ped fabric; Moderately moist; Weak consistence; 2-10%, coarse gravelly, 20-60mm, subrounded tabular, dispersed, Granodiorite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Diffuse, Smooth change to -
B23	0.74 - 1.02 m	Yellowish red (5YR4/6-Moist); ; Clay loam; Massive grade of structure; Earthy fabric; Moderately moist; Weak consistence; 20-50%, stony, 200-600mm, subrounded, dispersed, Granodiorite, coarse fragments; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Gradual change to -
C	1.02 - 1.77 m	Brown (10YR5/3-Moist); ; Clayey sand; Sandy (grains prominent) fabric; Moderately moist; Field pH 6 (pH meter);

Morphological Notes

B23 Large tors distributed through this horizon.

Observation Notes

PGP 12, centre post 4 m north of pit.

Site Notes

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations Ca	Mg	K	Na	Exchangeable Acidity	CEC	ECEC	ESP
m		dS/m				Cmol (+)/kg				%
0.02 - 0.1	4.73C		11.15H	2.64	1.11	0.04	1.65J		16.59E	
	5.49A						0K			
0.02 - 0.15										
0.14 - 0.23	4.36C		2.94H	1.31	0.78	0.02	2.57J		7.62E	
	5.37A						0K			
0.25 - 0.45										
0.32 - 0.4	3.98C		0.51H	0.47	0.56	0.01	4.86J		6.41E	
	4.96A						0K			
0.47 - 0.67	3.93C		0.28H	0.52	0.49	0.01	4.33J		5.63E	
	4.99A						0K			
0.5 - 0.7										
0.77 - 0.97	4.12C		0.6H	0.79	0.47	0.02	2.33J		4.21E	
	5.11A						0K			
1.22 - 1.52	4.74C		0.14H	0.15	0.31	0.02	0.17J		0.8E	
	5.3A						0K			

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0.02 - 0.1		6.4B		836.1B	0.3A		1.00	10.36				
0.02 - 0.15							1.05					
							1.09					
							0.91					
0.14 - 0.23		2.29B		691.4B	0.14A		1.23	8.07				
0.25 - 0.45							1.15					
							1.14					
0.32 - 0.4		1.12B		493.4B	0.08A		1.21	4.64				
0.47 - 0.67		0.56B		376.7B	0.04A		1.41	1.71				
0.5 - 0.7							1.26					
							1.22					
							1.18					
0.77 - 0.97		0.16B		341.2B	0.02A		1.58	5.26				
1.22 - 1.52		0.15B		693.7B	0.01A			22.87				

Depth	COLE	Gravimetric/Volumetric Water Contents Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	K sat	K unsat
m					g/g - m3/m3				mm/h	mm/h
0.02 - 0.1										
0.02 - 0.15			0.47E	0.42E		0.28E	0.24F	0.2F	1994D	81B
			0.46E	0.43E		0.28E	0.23F	0.18F	471D	98B
			0.44E	0.39E		0.24E	0.21F	0.18F	4792D	220B
0.14 - 0.23										
0.25 - 0.45			0.42E	0.38E		0.27E	0.2F	0.17F	651D	56B
			0.41E	0.38E		0.27E	0.21F	0.18F	560D	95B
0.32 - 0.4										
0.47 - 0.67										
0.5 - 0.7			0.42E	0.39E		0.27E	0.2F	0.17F	367D	63B
			0.42E	0.38E		0.25E	0.19F	0.16F	144D	35B
			0.4E	0.25E		0.26E	0.19F	0.16F	792D	74B
0.77 - 0.97										

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1.22 - 1.52

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Laboratory Analyses Completed for this profile

15_NR	Sum of Ex. cations + Ex. acidity - Not recorded
15E1_AL	Exchangeable Al - by compulsive exchange, no pretreatment for soluble salts
15E1_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) by compulsive exchange, no pretreatment for soluble
15E1_H	Exchangeable H - by compulsive exchange, no pretreatment for soluble salts
15E1_K	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
15E1_MG	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
15E1_NA	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
2A1	Air-dry moisture content
4A1	pH of 1:5 soil/water suspension
4B2	pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1
6B2	Total organic carbon - high frequency induction furnace, volumetric
7A2	Total nitrogen - semimicro Kjeldahl , automated colour
9A3	Total Phosphorus (ppm) - semimicro kjeldahl, automated colour
P10_GRAV	Gravel (%)
P3A1	Bulk density - g/cm3
P3B2VL_1	1 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb06	0.66 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_100DMcK	Unsaturated Hydraulic Conductivity - 100mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_10DMcK	Unsaturated Hydraulic Conductivity - 10mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_50DMcK	Unsaturated Hydraulic Conductivity - 50mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_sat_McK	Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)